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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,352	10/04/2006	Tsuyoshi Iwa	1000023-000060	2560

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EXAMINER	
KRYLOVA, IRINA	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
06/29/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/585,352	IWA ET AL.	
	Examiner	Art Unit	
	Irina Krylova	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/04/06; 07/06/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

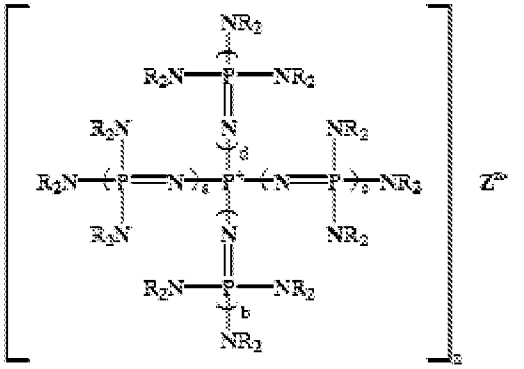
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bernard et al** (WO 03/000908) (rejection is based on it's English counterpart US 2006/0167124) in view of **Noboli et al** (US 5,990,352).

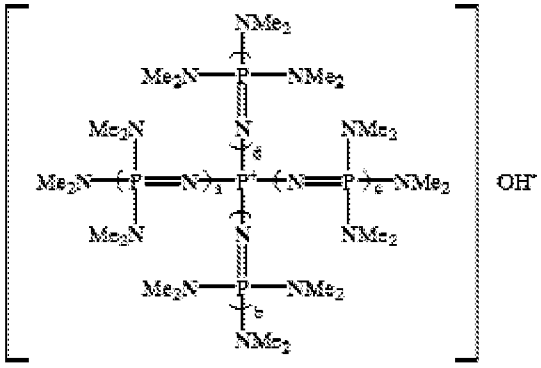
2. Bernard et al discloses a process for producing a polyamide comprising reacting:
1) a compound comprising at least one isocyanate function comprising polyisocyanate compounds ([0044]);
2) a compound having at least one carboxylic acid function ([0017]-[0020]) comprising a polycarboxylic acid ([0060]) in the presence of tertiary amine or metal carboxylate catalysts ([0077]).

3. Bernard et al fails to teach the use of phosphazenium salt or phosphine oxide catalysts.

4. Nobori et al discloses phosphazenium salts useful as active species in organic reactions, wherein the phosphazenium salt is having the formulas I or II:



Formula I



Formula II

Wherein n is an interger of 1-8; Z is an anion of an active compound; a,b,c and d each stand for a positive integer (see Abstract, col. 5, lines 5-15).

5. Nobori et al teaches that the phosphonium hydroxide of formula II effectively eliminates one or more protons from each of various active hydrogen compounds so that anion of the active hydrogen compound is produced; the anion thus produced possesses high nucleophilicity. Therefore, the phosphazenium hydroxide of the formula II is extremely useful as a base in organic synthesis reactions (see col. 16, lines 37-44).

6. Since

1) Bernard et al discloses a process for producing a polyamide comprising reacting polyisocyanate compounds with polycarboxylic acids in the presence of basic catalysts, but fails to teach the use of phosphazenium salts and hydroxides as catalysts in the reaction;

2) Nobori et al teaches phosphazenium salts possessing high nuclephilicity and extremely useful as bases in organic synthesis reaction;

3) it is known in the art that the reaction between the isocyanate group and carboxylic acid group is carried in the presence of a base catalyst; therefore,

it would have been obvious to a one skilled in the art at the time of the invention was made to conduct the reaction between the polyisocyanate and polycarboxylic acid of **Bernard et al** in the presence of a phosphazenium hydroxide strong nucleophilic basic catalyst of **Nobori et al** to further improve the kinetic rate of the reaction.

7. Though neither **Bernard et al** nor **Nobori et al** state the polyamide being thermosetting, nevertheless, since the polyamide of **Bernard et al** in view of **Nobori et**

al is identical to the polyamide claimed in the instant invention, therefore, the polyamide of **Bernard et al** in view of **Nobori et al** would be expected by one of ordinary state in the art to be instrinsically thermosetting as well.

8. Claims 1-3, 5-9, 11,13-14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bernard et al** (WO 03/000908) (rejection is based on it 's English counterpart US 2006/0167124) in view of **Noboli et al** (US 5,990,352) and **Daems** (US 5,334,624).

9. Bernard et al discloses a polyamide foam prepared by reacting (as to instant claim1):

1) a compound comprising at least one isocyanate function comprising polyisocyanate compounds ([0044]);

2) a compound having at least one carboxylic acid function ([0017]-[0020]) comprising a polycarboxylic acid ([0060]) in the presence of tertiary amine (as to instant claims 7, 9, cited in [0077]) or zinc carboxylate catalysts (as to instant claims 8, 13, cited in [0077]).

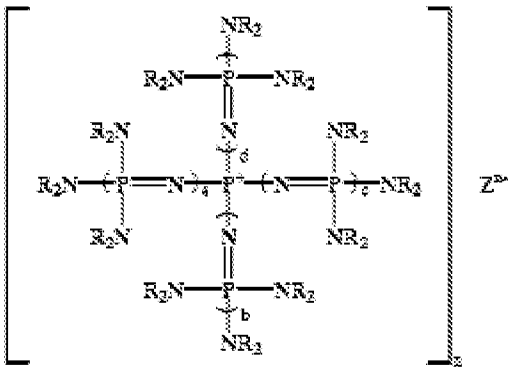
10. As to instant claim 3, the polyisocyanate comprises functionality of 2-8 ([0044]); the polycarboxylic acid comprises dicarboxylic acid ([0062]. Therefore, it would have been obvious to a one skilled in the art that the NCO index would obviously be more than 2.

11. As to instant claims 11, 16, the polyamide foam is used in sound insulation ([0002]).

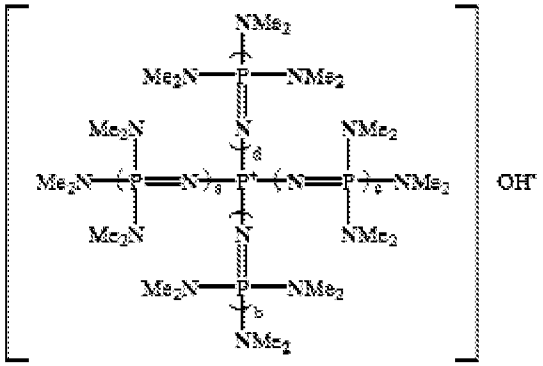
12. Bernard et al teaches that tertiary amine or zinc carboxylate catalysts are used to accelerate kinetics of the reaction ([0077]). Further, **Bernard et al** teaches that another catalyst may be used to accelerate the decarboxylation reaction of an acid and an isocyanate, the catalyst comprises tertiary amine ([0077]).

13. Bernard et al fails to teach the use of phosphazenium salt or phosphine oxide catalysts and the polycarboxylic acid being a polyester polycarboxylic acid having acid value of 20-70 mg KOH/g.

14. Nobori et al discloses phosphazenium salts useful as active species in organic reactions, wherein the phosphazenium salt is having the formulas I or II:



Formula I



Formula II

Wherein n is an interger of 1-8; Z is an anion of an active compound; a,b,c and d each stand for a positive integer (see Abstract, col. 5, lines 5-15).

15. Nobori et al teaches that the phosphonium hydroxide of formula II effectively eliminates one or more protons from each of various active hydrogen compounds so that anion of the active hydrogen compound is produced; The anion thus produced possesses high nucleophilicity. Therefore, the phosphazenium hydroxide of the formula II is extremely useful as a base in organic synthesis reactions (see col. 16, lines 37-44).

Though **Nobori et al** does not specify the phosphonium hydroxide catalyst to decompose at temperature of 130°C and above, nevertheless, since the phosphonium hydroxide catalyst of **Nobori et al** is the same compound as disclosed in the instant

invention, and it is stated in the instant specification that a reaction between the polyisocyanate and a polycarboxylic acid is conducted in the presence of a catalyst decomposable at a temperature of 130°C and which is a phosphonium compound, therefore, the property of the phosphonium hydroxide catalyst to decompose at temperature of 130°C and above would intrinsically be the same as that of the phosphonium hydroxide catalyst disclosed in the instant invention (see [0044]-[0049] of the instant specification).

16. **Daems** discloses a foam produced from a reaction of an acid-ended polyester produced from a reaction between a polyacid and a polyol, and a polyisocyanate in the presence of a basic catalyst (col. 2, lines 32-68). As to instant claim 2, the acid value of the acid-ended polyester is 5-100 mg KOH/g (col. 2, lines 32-37) and the polyester may exhibit hydroxyl functionality (col. 3, lines 5-6).

Since **Daems** specifies that the acid-ended polyester comprises acid value of 5-100 mg KOH/g and that the "polyester **may** exhibit hydroxyl functionality", therefore, it would have been obvious to a one skilled in the art at the time of the invention was made that the acid-ended polyester of **Daems** comprises either zero or minimum amount of hydroxyl groups.

17. Since

1) **Bernard et al** discloses a polyamide foam produced from reacting polyisocyanate compounds with polycarboxylic acids in the presence of basic catalysts, but fails to teach the use of phosphazenium salts and hydroxides as catalysts in the reaction; and the use of polyester polycarboxylic acids;

2) **Daems** discloses a foam produced from a reaction of an acid-ended polyester produced from a reaction between a polyacid and a polyol, and a polyisocyanate in the presence of a basic catalyst, wherein the foam comprises improved storage stability (see col. 2, lines 38-45);

3) Nobori et al teaches phosphazenium salts possessing high nuclephilicity and extremely useful as bases in organic synthesis reaction;

4) it is known in the art that the reaction between the isocyanate group and carboxy group is carried in the presence of a base catalyst (see col. 1, lines 10-24 in **Daems)**; therefore,

it would have been obvious to a one skilled in the art at the time of the invention was made to conduct the reaction between the polyisocyanate and polycarboxylic acid of **Bernard et al** in the presence of a phosphazenium hydroxide strong nucleophilic basic catalyst of **Nobori et al** to further improve the kinetic rate of the reaction. Further, it would have been obvious to a one skilled in the art at the time of the invention was made to conduct the reaction between the polyisocyanate and a polyester polycarboxylic acid, as in **Daems,** to produce a foam having improved storage stability. Since phosphazenium salts possess high nuclephilicity and extremely useful as bases in organic synthesis reaction; therefore, it would have been obvious to a one skilled in

the art at the time of the invention was made to use this catalyst in possible combination with tertiary amine or zinc carboxylate catalysts to further increase the rate of the reaction between the polyisocyanate and the polycarboxylic acid.

18. Though neither **Bernard et al** nor **Nobori et al** nor **Daems** state the polyamide being thermosetting, nevertheless, since the polyamide of **Bernard et al** in view of **Nobori et al** and **Daems** is identical to the polyamide claimed in the instant invention, therefore, the polyamide of **Bernard et al** in view of **Nobori et al** would be expected by one of ordinary state in the art to be instrinsically thermosetting as well.

19. Claims 10-12, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bernard et al** (WO 03/000908) (rejection is based on it 's English counterpart US 2006/0167124) in view of **Noboli et al** (US 5,990,352) and **Daems** (US 5,334,624), as applied to claims 1 and 5 above, in further view of **Moser et al** (US 5,731,359).

20. The discussion with respect to **Bernard et al** in view of **Noboli et al** and **Daems,** as set forth in paragraphs 8-18 above, is incorporated here by reference.

21. Bernard et al in view of **Noboli et al** and **Daems** fail to teach the polyamide foam being used as vibration dampers or cushioning materials.

22. Moser et al discloses vibration-absorbing elements and sound absorbing materials comprising polyamide foam (Abstract, col. 1, lines 5-10).

23. Since **Moser et al** discloses vibration-absorbing elements and sound absorbing materials comprising polyamide foam, wherein the foam comprises excellent absorption properties, therefore, it would have been obvious to a one skilled in the art at the time of the invention was made to use the polyamide foam of **Bernard et al** in view of **Noboli et al** and **Daems** for making vibration-absorbing elements and sound absorbing materials as well.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina Krylova whose telephone number is (571)270-7349. The examiner can normally be reached on Monday-Friday 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Irina Krylova/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796